Trend Study 17-65-05

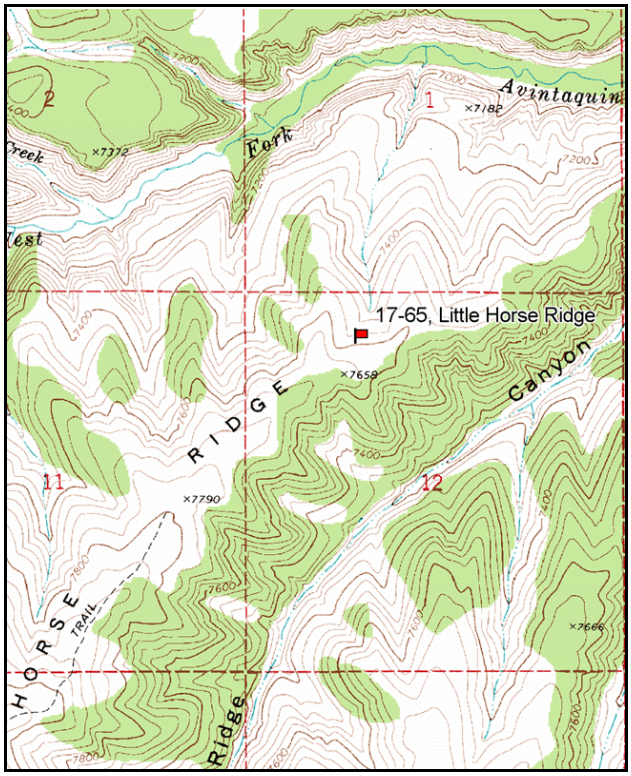
Study site name: Little Horse Ridge . Vegetation type: Mountain Brush .

Compass bearing: frequency baseline 60 degrees magnetic.

Frequency belt placement: line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

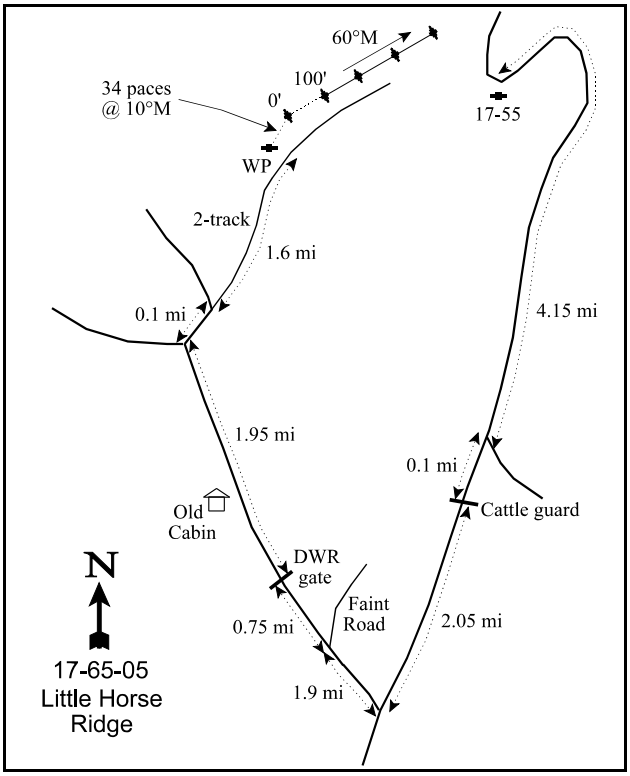
LOCATION DESCRIPTION

From the Strawberry River Road, proceed south up Avintaquin Canyon 12.7 miles. Turn left here onto a road hidden in the trees and cross Avintaquin Creek. Go up Horse Ridge Canyon 0.4 miles to a fence. Continue up the ridge 0.8 miles to a sharp left bend in the road by trend study 17-55. Continue south 4.15 miles to a fork in the road. Stay right and continue 0.1 miles to a cattle guard. After the cattle guard travel 2.05 miles and take a right. Travel 1.9 miles to a faint fork in the road. Stay to the left and continue another 0.75 miles to a DWR gate. Pass through the gate and drive 1.95 miles, passing an old cabin on the left, to a fork in the road. Stay right and travel 0.1 miles to another fork. Take the 2-track to the right and follow it for 1.6 miles to a witness post on the left hand side of the road. The 0' stake is 34 paces from the witness post at 10 degrees magnetic.



Map Name: Grey Head Peak

Township 6S , Range 9W , Section 12



Diagrammatic Sketch

GPS: NAD 27, UTM 12S 4425240 N, 512973 E

DISCUSSION

Little Horse Ridge - Trend Study No. 17-65

The Little Horse Ridge trend study is located on big game winter range near the north end of Little Horse Ridge at about 7,600 feet in elevation. The land is owned and managed by the Division of Wildlife Resources in the Avintaquin Wildlife Management Area. The range type is a mixed mountain brush on a northwest exposure with a 25% to 30% slope. This site was established in 2005 to monitor deer that are staying in the high country during winter, instead of migrating lower. This herd has a high mortality rate for not only fawns, but adults as well. Pellet group data from 2005 was estimated at 3 elk, 34 deer, 2 cow, 6 horse, and 1 moose days use/acre (7 edu/ha, 83 ddu/ha, 5 cdu/ha, 16 hdu/ha, and 2 mdu/ha).

Soil is moderately deep with an effective rooting depth estimated at 16 inches. The soil has a clay loam texture with a slightly alkaline pH of 7.4. Phosphorus levels were measured at 5.2 ppm, values less than 6 ppm can limit normal plant growth and development (Tiedemann and Lopez 2004). Rock and pavement are concentrated on the surface between bunch grass and shrub interspaces. Rock and gravel are also distributed throughout the soil profile. The erosion condition class determined soil movement as stable in 2005.

Several browse species occupy the site, but the key species consist of true mountain mahogany and mountain big sagebrush. True mountain mahogany provided an average cover of 6.5% with a density of 2,600 plants/acre. Almost half of the population was classified in the young age class and showed a good distribution among the age classes. Several seedlings were observed as well. Utilization was moderate to heavy, but vigor was good. Mountain big sagebrush averaged 5% cover with a density of 1,460 plants/acre. This population also showed a well distributed age class with 16% of the population classified as young, but percent decadence was moderately high at 41%. Utilization was moderate with moderate vigor. Drought conditions have persisted since 2000 and would be considered the main factor in the reduced vigor of the sagebrush. Leader growth on all species was good with above normal precipitation in 2005.

Other browse species include serviceberry, pinyon pine, rabbitbrush, and snowberry. Serviceberry shows moderate use with excellent vigor. Pinyon pine appears to be invading the site and point-centerquarter data estimated 233 trees/acre with a mean diameter of 2.7 inches. Some type of thinning of pinyon should be considered before it begins to have a significantly depressing effect on the understory species. Once it begins to approach 10% cover, it begins to have a deleterious effect on the understory species (Tausch and West 1994). Currently it is approaching 8% cover.

The herbaceous understory is dominated by grasses which produced 16% cover in 2005. Two species, bluebunch wheatgrass and Salina wildrye, account for 97% of the grass cover. Forbs are diverse and moderately abundant with 14 perennial species encountered in 2005. Combined they produced less than 3% cover. Common species include: tapertip hawksbeard, gumweed aster, desert phlox.

The Desirable Components Index rated this site as excellent to good in 2005 with a score of 80 due to good shrub cover, low percent decadence, good shrub recruitment, and excellent perennial grasses cover.

2005 winter range condition (DC Index) - excellent to good (80) Mid-level Potential scale

HERBACEOUS TRENDS --
Management unit 17 , Study no: 65

Type	Species	Nested Frequency '05	Average Cover % '05
G	Agropyron spicatum	168	6.82
G	Elymus salina	247	9.00
G	Oryzopsis hymenoides	10	.08
G	Poa fendleriana	41	.40
G	Poa secunda	6	.06
Total for Annual Grasses		0	0
Total for Perennial Grasses		472	16.36
Total for Grasses		472	16.36
F	Androsace septentrionalis (a)	15	.08
F	Aster chilensis	2	.01
F	Astragalus convallarius	10	.10
F	Astragalus sp.	7	.07
F	Castilleja chromosa	13	.04
F	Calochortus nuttallii	11	.03
F	Chenopodium leptophyllum(a)	2	.00
F	Crepis acuminata	72	.70
F	Cymopterus sp.	3	.01
F	Ipomopsis aggregata	4	.01
F	Machaeranthera canescens	1	.00
F	Machaeranthera grindelioides	30	.71
F	Penstemon caespitosus	8	.02
F	Phlox austromontana	59	.62
F	Senecio multilobatus	8	.02
F	Taraxacum officinale	9	.09
Total for Annual Forbs		17	0.09
Total for Perennial Forbs		237	2.46
Total for Forbs		254	2.54

Values with different subscript letters are significantly different at alpha = 0.10

BROWSE TRENDS --
Management unit 17 , Study no: 65

Type	Species	Strip Frequency '05	Average Cover % '05
B	Amelanchier utahensis	11	1.68
B	Artemisia tridentata vaseyana	50	5.24
B	Cercocarpus montanus	54	6.47
B	Chrysothamnus depressus	2	-
B	Chrysothamnus nauseosus hololeucus	1	.03
B	Chrysothamnus viscidiflorus viscidiflorus	56	1.83
B	Gutierrezia sarothrae	11	.21
B	Pediocactus simpsonii	1	-
B	Pinus edulis	12	5.48
B	Symphoricarpos oreophilus	21	1.03
B	Tetradymia canescens	28	.40
Total for Browse		247	22.40

CANOPY COVER, LINE INTERCEPT --
Management unit 17 , Study no: 65

Species	Percent Cover '05
Amelanchier utahensis	2.68
Artemisia tridentata vaseyana	4.50
Cercocarpus montanus	10.38
Chrysothamnus viscidiflorus viscidiflorus	1.58
Pinus edulis	7.40
Symphoricarpos oreophilus	1.01
Tetradymia canescens	.25

KEY BROWSE ANNUAL LEADER GROWTH --
Management unit 17 , Study no: 65

Species	Average leader growth (in) '05
Amelanchier utahensis	3.2
Cercocarpus montanus	3.6

POINT-QUARTER TREE DATA --
Management unit 17 , Study no: 65

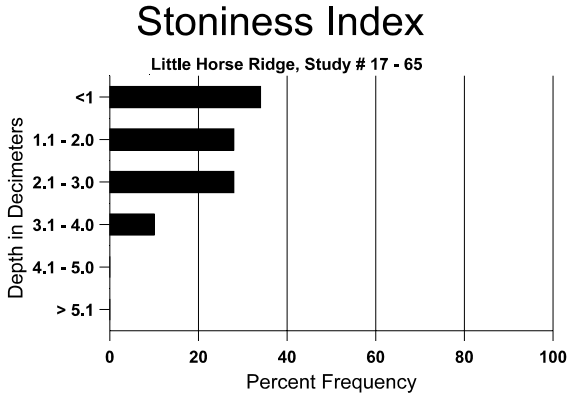
Species	Trees per Acre '05	Average diameter (in) '05
Pinus edulis	233	2.7

BASIC COVER --
Management unit 17 , Study no: 65

Cover Type	Average Cover % '05
Vegetation	39.93
Rock	3.64
Pavement	16.93
Litter	35.96
Cryptogams	1.19
Bare Ground	15.76

SOIL ANALYSIS DATA --
Herd Unit 17, Study # 65, Study Name: Little Horse Ridge

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	ppm P	ppm K	dS/m
16.0	45.0 (16.5)	7.4	25.1	41.7	33.2	3.5	5.2	220.8	0.7



PELLET GROUP DATA --
Management unit 17 , Study no: 65

Type	Quadrat Frequency '05	Days use per acre (ha) '05
Rabbit	53	-
Moose	2	1 (2)
Horse	3	6 (16)
Elk	-	3 (7)
Deer	17	34 (83)
Cattle	-	2 (6)

BROWSE CHARACTERISTICS --
Management unit 17 , Study no: 65

		Age class distribution (plants per acre)					Utilization					
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% dying	% poor vigor	Average Height Crown (in)
Amelanchier utahensis												
05	**400**	20	160	240	-	-	25	20	-	-	0	50/48
Artemisia tridentata vaseyana												
05	**1460**	280	240	620	600	820	41	10	41	21	21	25/32
Cercocarpus montanus												
05	**2600**	740	1160	1400	40	60	17	65	2	.76	.76	43/41
Chrysothamnus depressus												
05	**140**	-	-	140	-	-	57	0	-	-	0	4/5
Chrysothamnus nauseosus hololeucus												
05	**20**	-	-	20	-	-	0	0	-	-	0	8/4
Chrysothamnus viscidiflorus viscidiflorus												
05	**2400**	40	180	2220	-	20	3	0	-	-	0	10/11
Gutierrezia sarothrae												
05	**300**	-	80	220	-	-	0	0	-	-	0	6/6
Juniperus osteosperma												
05	**0**	40	-	-	-	-	0	0	-	-	0	-/-
Pediocactus simpsonii												
05	**20**	-	-	20	-	-	0	0	-	-	0	-/-
Pinus edulis												
05	**240**	20	80	160	-	-	0	0	-	-	0	-/-
Purshia tridentata												
05	**0**	-	-	-	-	-	0	0	-	-	0	9/11

		Age class distribution (plants per acre)					Utilization					
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% dying	% poor vigor	Average Height Crown (in)
Symphoricarpos oreophilus												
05	**720**	20	180	520	20	-	3	3	3	3	3	15/21
Tetradymia canescens												
05	**720**	20	60	520	140	20	19	6	19	14	14	9/9